

Explore the NewSpace era

IEUM - Series

IEUM-33

NURI - Series

NURI-35

NURI-35L

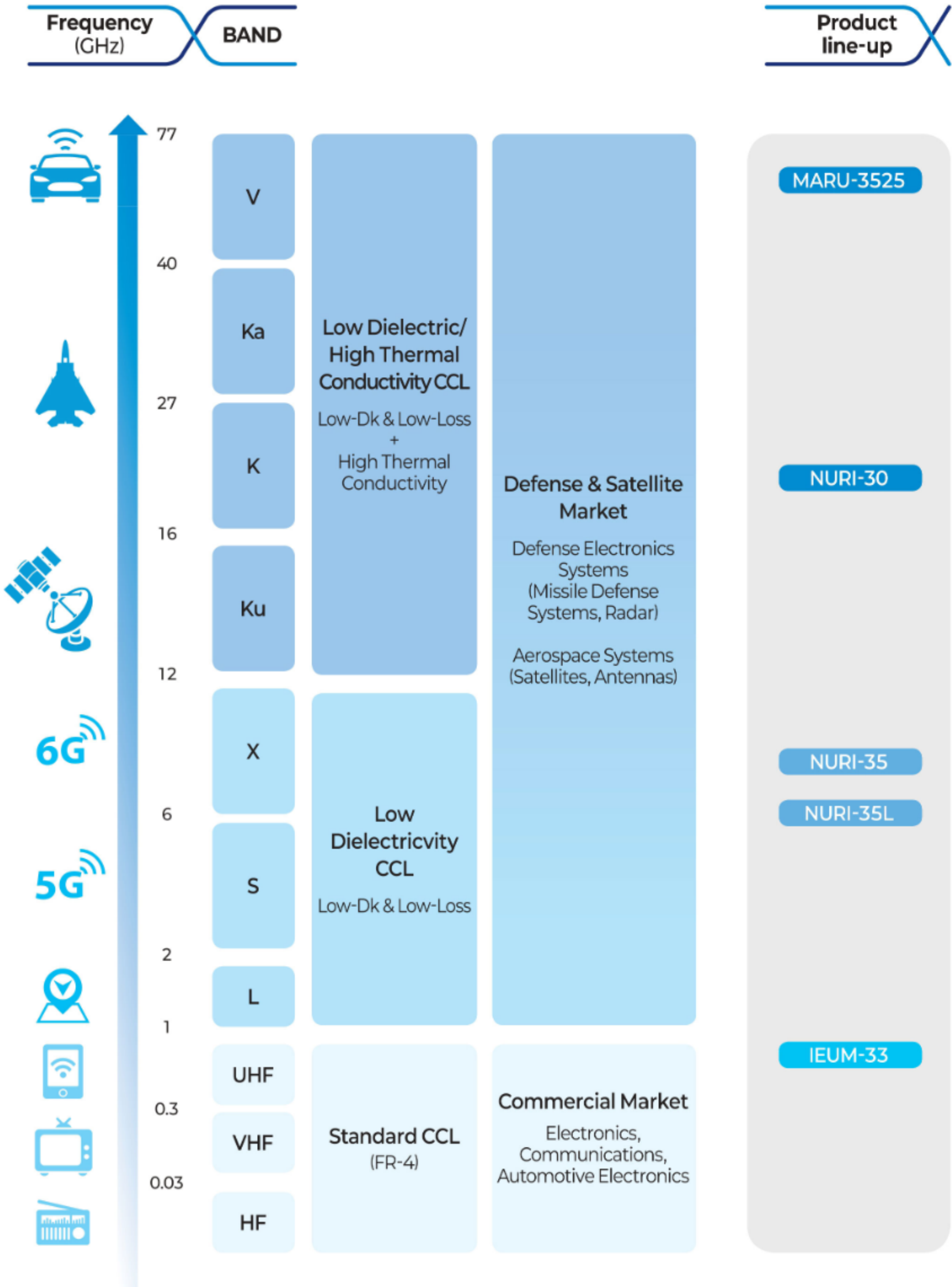
NURI-30

MARU - Series

MARU-3525



Application



IEUM-33

Product Description

WILCOAPEX's IEUM-33 is a premium low-dielectric RF laminate designed for high-volume wireless applications. It provides superior electrical performance with an optimized Dk of 3.3, enabling cost-efficient production using standard FR-4 fabrication methods. With excellent thermal stability and low CTE, IEUM-33 maintains top-tier performance across varied operating environments.



Benefits

IEUM-33 delivers advanced RF performance and unmatched thermal stability with low CTE, while maintaining smooth, cost-efficient manufacturability through standard PCB processes.

Applications

Ideal for high-performance RF communication systems, including base station antennas, automotive antennas (telematics, V2X), wireless modules, and general broadband and consumer RF equipment.

Property	Typical Value	Unit	Test Method
Dielectric Constant (@ 10 GHz)	3.30 ± 0.05	-	IPC-TM-650 2.5.5.13
Dissipation Factor (@ 10 GHz)	0.0040	-	IPC-TM-650 2.5.5.13
PIM (800, 1800, 2100, 2600MHz)	< -160	dBc	-
Volume Resistivity	4.1 x 10 ¹⁵	MΩ•cm	ASTM D257
Surface Resistivity	1.3 x 10 ¹⁵	MΩ	ASTM D257
Electrical Strength	24	kV	ASTM D149
Tensile Modulus	7,215	MPa	ASTM D638
Tensile Strength	101	MPa	ASTM D638
Flexural Strength	286	MPa	ASTM D790
Coefficient of Thermal Expansion (Z)	55.8	ppm/°C	ASTM E831
Tg (DSC)	> 160	°C	ASTM E831
Td (TGA)	438	°C	ASTM D3850
Thermal Conductivity	0.46	W/(m•K)	ASTM E1461
Moisture Absorption	0.10	%	ASTM D570
Density	1.58	g/cm ³	ASTM D792
Copper Peel Strength	0.82	N/mm	ASTM D3330
Flammability	V-0	-	UL94

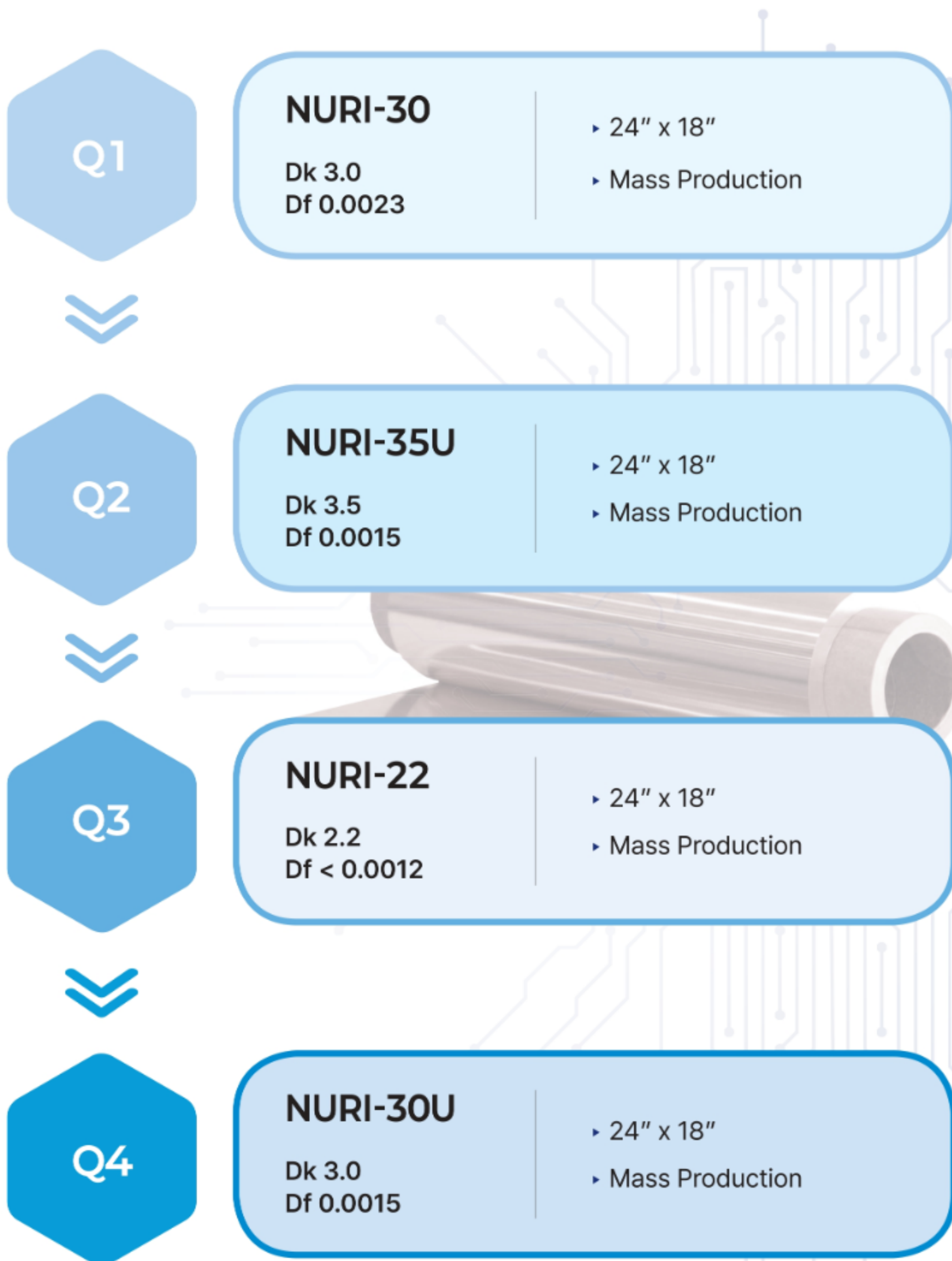
Standard Thickness	Standard Panel Sizes	Standard Claddings
0.030"(0.76 mm) ± 0.0020" 0.060"(1.52 mm) ± 0.0040"	24" X 18" (610 X 457 mm)	1/2 oz (17.5 µm) Cu 1 oz (35 µm) Cu

NOTE

- IEUM-33 laminates meet the requirements of IPC-4103B/240.
- The copper foil used in this product is RTF (Reverse Treated Foil).
- All test data provided are typical and not specification values. For review of specification values, please contact WILCOAPEX directly
- Additional thicknesses and panel sizes available
- Additional cladding weights are available

NURI-SERIES

Product Launch Roadmap 2026'

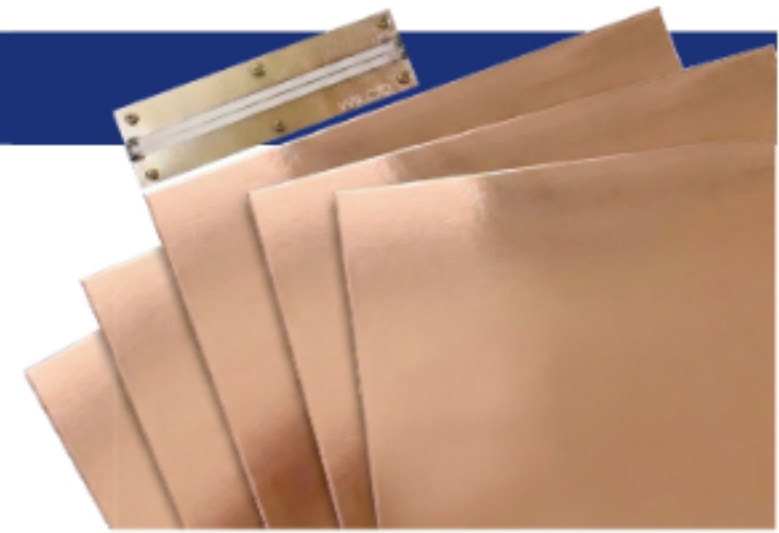


NURI-SERIES

NURI-35 / NURI-35L

Product Description

WILCOAPEX's low-dielectric RF laminate NURI-35(L) is tailored for high-frequency and RF applications, providing stable dielectric properties with low loss to ensure reliable signal integrity. It processes easily within standard fabrication methods, offering flexibility and cost-efficiency. With excellent thermal reliability and low CTE, NURI-35(L) ensures consistent performance in challenging thermal environments.



Benefits

Stable electrical performance with low dielectric loss, thermal reliability with low CTE, and FR-4 process compatibility. Ensures signal integrity and reliable performance in extreme conditions.

Applications

Ideal for use in base station antennas, power amplifiers, automotive radar and communication systems, satellite communications, radar systems, broadband, GPS, and RF communication devices.

Property	Typical Value		Unit	Test Method
	NURI-35	NURI-35L		
Dielectric Constant (@ 10 GHz)	3.49 ± 0.05	3.66 ± 0.05	-	IPC-TM-650 2.5.5.13
Dissipation Factor (@ 10 GHz)	0.0026	0.0037	-	IPC-TM-650 2.5.5.13
Volume Resistivity	4.0 X 10 ⁹	8.1 X 10 ¹⁵	MΩ·cm	ASTM D257
Surface Resistivity	3.0 X 10 ⁷	6.7 X 10 ¹⁵	MΩ	ASTM D257
Electrical Strength	16	17	kV	ASTM D149
Tensile Modulus	17,460	15,960	MPa	ASTM D638
Tensile Strength	192	163	MPa	ASTM D638
Flexural Strength	364	330	MPa	ASTM D790
Coefficient of Thermal Expansion (X,Y / Z)	11 / 59	14 / 42	ppm/°C	ASTM E831
Tg (TMA)	> 180	> 180	°C	ASTM D3418
Td (TGA)	440	435	°C	ASTM D3850
Thermal Conductivity	0.56	0.50	W/(m·K)	ASTM E1461
Moisture Absorption	0.04	0.06	%	ASTM D570
Density	1.76	1.70	g/cm ³	ASTM D792
Copper Peel Strength	0.92	0.95	N/mm	ASTM D3330
Flammability	V-0	V-0	-	UL94

Standard Thickness	Standard Panel Sizes	Copper Claddings	Ordering Number (P/N)
0.010"(0.254 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35-0100-240180-NH/NH
0.020"(0.508 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35-0200-240180-NH/NH
0.030"(0.762 mm) ± 0.0020"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35-0300-240180-NH/NH
0.060"(1.524 mm) ± 0.0040"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35-0600-240180-NH/NH
0.120"(3.048 mm) ± 0.0080"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35-1200-240180-NH/NH
0.010"(0.254 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1 oz	NURI-35-0100-240180-N1/N1
0.020"(0.508 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1 oz	NURI-35-0200-240180-N1/N1
0.030"(0.762 mm) ± 0.0020"	24" X 18" (610 X 457 mm)	1 oz	NURI-35-0300-240180-N1/N1
0.060"(1.524 mm) ± 0.0040"	24" X 18" (610 X 457 mm)	1 oz	NURI-35-0600-240180-N1/N1
0.120"(3.048 mm) ± 0.0080"	24" X 18" (610 X 457 mm)	1 oz	NURI-35-1200-240180-N1/N1
0.005"(0.127 mm) ± 0.0007"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35L-0050-240180-NH/NH
0.010"(0.254 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35L-0100-240180-NH/NH
0.020"(0.508 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35L-0200-240180-NH/NH
0.030"(0.762 mm) ± 0.0020"	24" X 18" (610 X 457 mm)	1/2 oz	NURI-35L-0300-240180-NH/NH
0.005"(0.127 mm) ± 0.0007"	24" X 18" (610 X 457 mm)	1 oz	NURI-35L-0050-240180-N1/N1
0.010"(0.254 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1 oz	NURI-35L-0100-240180-N1/N1
0.020"(0.508 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1 oz	NURI-35L-0200-240180-N1/N1
0.030"(0.762 mm) ± 0.0020"	24" X 18" (610 X 457 mm)	1 oz	NURI-35L-0300-240180-N1/N1

NOTE

- NURI-35(L) laminates meet the requirements of IPC-4103B/240.
- The copper foil used in this product complies with the requirements of IPC-4562 HTE-Type E.
- All test data provided are typical and not specification values. For review of specification values, please contact WILCOAPEX directly
- Additional thicknesses and panel sizes available
- Additional cladding weights are available

NURI-30

Product Description

WILCOAPEX's high-performance RF laminate NURI-30 is engineered for advanced high-frequency applications, combining FR-4 and hydrocarbon-class machinability and plating performance with PTFE-like dielectric characteristics. Designed with a low dielectric constant ($D_k \approx 3.0$) and low dielectric loss, NURI-30 delivers enhanced signal integrity while remaining fully compatible with standard PCB fabrication processes. With strong thermal reliability and low CTE, it provides stable performance in demanding environments. NURI-30 targets automotive radar, 5G/6G RF modules, aerospace and defense radar systems, satellite communications, and high-speed RF infrastructure, where high electrical performance and manufacturing compatibility are both critical.

Benefits

Lower dielectric constant for improved signal performance, low dielectric loss for stable high-frequency operation, excellent thermal reliability with low CTE, and full compatibility with standard FR-4 fabrication processes.

Applications

Ideal for use in base station antennas, power amplifiers, automotive radar and communication systems, satellite communications, radar systems, broadband, GPS, and RF communication devices.

Property	Typical Value	Unit	Test Method
Dielectric Constant (@ 10 GHz)	3.00 ± 0.05	-	IPC-TM-650 2.5.5.13
Dissipation Factor (@ 10 GHz)	0.0023	-	IPC-TM-650 2.5.5.13
Volume Resistivity	6.5 x 10 ¹⁵	MΩ·cm	ASTM D257
Surface Resistivity	7.4 x 10 ¹⁴	MΩ	ASTM D257
Electrical Strength	18	kV	ASTM D149
Tensile Modulus(MD/TD)	7,620 / 7,170	MPa	ASTM D882
Tensile Strength(MD/TD)	169 / 109	MPa	ASTM D882
Flexural Strength	288	MPa	ASTM D790
Coefficient of Thermal Expansion (X,Y / Z)	20.2 / 53.6	ppm/°C	ASTM E831
Tg (DMA)	200	°C	ASTM E831
Td (TGA)	440	°C	ASTM D3850
Thermal Conductivity	0.35	W/(m·K)	ASTM E1461
Moisture Absorption	0.10	%	ASTM D570
Density	1.65	g/cm ³	ASTM D792
Copper Peel Strength	1.24	N/mm	ASTM D3330
Flammability	V-0	-	UL94

Standard Thickness	Standard Panel Sizes	Copper Claddings	Ordering Number (P/N)
0.004"(0.102 mm) ± 0.0007"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0040-240180-NH/NH
0.005"(0.127 mm) ± 0.0007"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0050-240180-NH/NH
0.008"(0.203 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0080-240180-NH/NH
0.010"(0.254 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0100-240180-NH/NH
0.012"(0.305 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0120-240180-NH/NH
0.015"(0.381 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0150-240180-NH/NH
0.016"(0.406 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0160-240180-NH/NH
0.020"(0.508 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0200-240180-NH/NH
0.030"(0.762 mm) ± 0.0020"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0300-240180-NH/NH
0.060"(1.524 mm) ± 0.0040"	24" X 18" (610 X 457 mm)	1/2 Oz	NURI-30-0600-240180-NH/NH
0.004"(0.102 mm) ± 0.0007"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0040-240180-N1/N1
0.005"(0.127 mm) ± 0.0007"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0050-240180-N1/N1
0.008"(0.203 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0080-240180-N1/N1
0.010"(0.254 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0100-240180-N1/N1
0.012"(0.305 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0120-240180-N1/N1
0.015"(0.381 mm) ± 0.0010"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0150-240180-N1/N1
0.016"(0.406 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0160-240180-N1/N1
0.020"(0.508 mm) ± 0.0015"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0200-240180-N1/N1
0.030"(0.762 mm) ± 0.0020"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0300-240180-N1/N1
0.060"(1.524 mm) ± 0.0040"	24" X 18" (610 X 457 mm)	1 Oz	NURI-30-0600-240180-N1/N1

NOTE

- NURI-30 laminates meet the requirements of IPC-4103B/240.
- All test data provided are typical and not specification values. For review of specification values, please contact WILCOAPEX's directly
- Additional thicknesses and panel sizes available
- Additional cladding weights are available

MARU-SERIES

Product Launch Roadmap 2026'

Q1

MARU-3520

Dk 3.5
Thermal conductivity 2.0W/mK

- 24" x 18"
- Mass Production

Q2

MARU-3525

Dk 3.5
Thermal conductivity 2.5W/mK

- 24" x 18"
- Mass Production

Q3

MARU-3525

Target Thickness: 5mil

- 24" x 18"
- Mass Production

Q4

MARU-3525

Target Thickness: 2mil

- 24" x 18"
- Mass Production

MARU-3525

Product Description

WILCOAPEX's MARU series CCL delivers ≥ 2.5 W/m-K thermal conductivity alongside a dielectric constant ≤ 3.5 and dissipation factor ≤ 0.003 at 10 GHz. Its optimized resin-filler matrix rapidly spreads heat, maintains minimal CTE through thermal cycling, and preserves signal integrity. Fully compatible with standard FR-4 drilling, plating and etching, MARU integrates seamlessly into existing PCB workflows without special tooling.



Benefits

Industry-leading heat dissipation and ultra-low RF loss stabilize performance under heavy loads while its minimal coefficient of thermal expansion ensures precise impedance control.

Applications

Ideal for high-power RF front-end modules (amplifiers, filters, couplers) in base-station and radar arrays, as well as satellite payloads, mmWave 5G small cells, and compact GPS/IoT transceivers.

Property	Typical Value	Unit	Test Method
Dielectric Constant (@ 10 GHz)	3.50 ± 0.05	-	IPC-TM-650 2.5.5.13
Dielectric Factor (@ 10 GHz)	0.0020	-	IPC-TM-650 2.5.5.13
Volume Resistivity	1.0×10^{10}	M Ω -cm	ASTM D257
Surface Resistivity	3.2×10^8	M Ω	ASTM D257
Electrical Strength	17	kV	ASTM D149
Tensile Modulus	5,170	MPa	ASTM D638
Tensile Strength	53	MPa	ASTM D638
Flexural Strength	121	MPa	ASTM D790
Coefficient of Thermal Expansion (Z)	20 / 69	ppm/ $^{\circ}$ C	ASTM E831
Td (TGA)	452	$^{\circ}$ C	ASTM D3850
Thermal Conductivity	2.5	W/(m-K)	ASTM E1461
Moisture Absorption	0.05	%	ASTM D570
Density	1.60	g/cm ³	ASTM D792
Copper Peel Strength	0.40	N/mm	ASTM D3330
Flammability	N/A	-	UL94

Standard Thickness	Standard Panel Sizes	Copper Claddings	Ordering Number (P/N)
0.010"(0.256 mm) $\pm$ 0.0010"	24" X 18" (610 X 457 mm)	1/2 oz	MARU-3520-0100-240180-NH/NH
0.020"(0.508 mm) $\pm$ 0.0015"	24" X 18" (610 X 457 mm)	1/2 oz	MARU-3520-0200-240180-NH/NH
0.030"(0.762 mm) $\pm$ 0.0020"	24" X 18" (610 X 457 mm)	1/2 oz	MARU-3520-0300-240180-NH/NH
0.060"(1.524 mm) $\pm$ 0.0040"	24" X 18" (610 X 457 mm)	1/2 oz	MARU-3520-0600-240180-NH/NH
0.005"(0.127 mm) $\pm$ 0.0007"	24" X 18" (610 X 457 mm)	1 oz	MARU-3520-0050-240180-N1/N1
0.010"(0.256 mm) $\pm$ 0.0010"	24" X 18" (610 X 457 mm)	1 oz	MARU-3520-0100-240180-N1/N1
0.020"(0.508 mm) $\pm$ 0.0015"	24" X 18" (610 X 457 mm)	1 oz	MARU-3520-0200-240180-N1/N1
0.030"(0.762 mm) $\pm$ 0.0020"	24" X 18" (610 X 457 mm)	1 oz	MARU-3520-0300-240180-N1/N1
0.060"(1.524 mm) $\pm$ 0.0040"	24" X 18" (610 X 457 mm)	1 oz	MARU-3520-0600-240180-N1/N1

NOTE

- MARU-3520 laminates meet the requirements of IPC-4103B/240.
- All test data provided are typical and not specification values. For review of specification values, please contact WILCOAPEX's directly.
- Additional thicknesses and panel sizes available.
- Additional cladding weights are available.